

*Carrier Air
Conditioning Co.*

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY UAD-1
REGION IV

2/11/93

#19571

In The Matter Of:

CARRIER AIR CONDITIONING
SUPERFUND SITE

Carrier Corporation,
Collierville, Tennessee

Respondent.

)
)
) Proceeding Under Section
) 106(a) of the Comprehensive
) Environmental Response,
) Compensation, and
) Liability Act of 1980, as
) amended by the Superfund
) Amendments and
) Reauthorization Act of 1986
) 42 U.S.C. § 9606(a)
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)
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) U.S. EPA Docket No. 93-06-C
)

UNILATERAL ADMINISTRATIVE ORDER
FOR REMEDIAL DESIGN AND REMEDIAL ACTION

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UNILATERAL ADMINISTRATIVE ORDER
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I. INTRODUCTION AND JURISDICTION

A. This Unilateral Administrative Order For Remedial Design and Remedial Action ("this Order") directs Respondent, as identified in Section III herein, to develop the Remedial Design (RD) for the remedy described in the Record of Decision (ROD), dated September 3, 1992, for the Carrier Air Conditioning Superfund Site, and to implement Remedial Action (RA), Operation and Maintenance, and Performance Monitoring. This Order is issued to Respondent by the United States Environmental Protection Agency (EPA) under the authority vested in the President of the United States by Section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, 42 U.S.C. § 9606(a). This authority was delegated to the Administrator of EPA on January 23, 1987, by Executive Order

12580 (52 Fed. Reg. 2926, January 29, 1987), and was further delegated to EPA Regional Administrators on September 13, 1987, by EPA Delegation No. 14-14-B and redelegated to the Director, Waste Management Division on January 5, 1989, by Regional Delegation No. 8-14-A.

II. PARTY BOUND

A. This Order applies to and shall be binding upon Respondent, as identified in Section III, its directors, officers, employees, agents, successors, and assigns. Respondent is responsible for carrying out all activities required by this Order. No change in the ownership, corporate or other control of Respondent shall alter the Respondent's responsibilities under this Order.

B. Respondent shall provide a copy of this Order to any prospective owners or successors before property rights, stock, or assets are transferred. Respondent shall provide a copy of this Order to all contractors, sub-contractors, laboratories, and consultants retained to perform any Work under this Order, within five (5) days after the effective date of this Order, or on the date such services are retained, whichever date occurs later.

Notwithstanding the terms of any contract, Respondent is responsible for ensuring that its contractors and subcontractors and agents perform the work contemplated herein in accordance with this Order.

C. With regard to the activities undertaken pursuant to this Order, each contractor and subcontractor and agent shall be deemed to be related by contract to the Respondent within the meaning of Section 107(b)(3) of CERCLA, 42 U.S.C. § 9607(b)(3).

D. Within thirty (30) days after the effective date of this Order, Respondent shall record a copy or copies of this Order in the appropriate office where land ownership and transfer records are filed or recorded, and shall ensure that the recording of this Order is indexed to the titles of each and every property at the Site so as to provide notice to third parties of the issuance and terms of this Order with respect to those properties.

Respondent shall, within fifteen (15) days after the effective date of such recording, send notice of such recording and indexing to EPA.

E. Not later than sixty (60) days prior to any transfer of any real property interest in any property included within the Site, Respondent shall submit a true and correct copy of the transfer documents to EPA, and shall identify the transferee by name, principal business address and effective date of the transfer.

III. DEFINITIONS

Unless noted to the contrary, the terms of this Administrative Order shall have the meaning assigned to those terms pursuant to CERCLA or any regulation promulgated under CERCLA. Whenever the terms listed below are used in this Administrative Order and Exhibits and Appendices attached hereto, the following definitions shall apply:

- A. "Carrier" shall mean Carrier Corporation, a Delaware corporation with its principal place of business in New York.
- B. "CERCLA" shall mean the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, 41 U.S.C. § 9601 et seq.

C. "Day" shall mean a calendar day unless expressly stated to be a working day. "Working day" shall mean a day other than a Saturday, Sunday, or federal holiday. In computing any period of time under this Order, where the last day would fall on a Saturday, Sunday, or federal holiday, the period shall run until the end of the next working day.

D. "EPA" shall mean the United States Environmental Protection Agency.

E. "Facility" shall mean any facility meeting the definition provided in Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

F. "Hazardous Substance" shall mean any substance meeting the definition provided in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

G. "National Contingency Plan" or "NCP" shall mean the National Oil and Hazardous Substances Pollution Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, including any amendments thereto.

H. "Operation and Maintenance" or "O&M" shall mean all operation and maintenance activities required by the ROD, the Statement of Work and the Final Operation and Maintenance Plan developed by Respondent and approved by EPA pursuant to this Order, including any additional activities required by Sections IX, X, and XI.

I. "Paragraph" shall mean a portion of this Order identified by a capital letter.

J. "Parties" shall mean EPA and Respondent.

K. "Performance Monitoring" shall mean all performance monitoring activities required by the ROD, the Statement of Work,

and the Performance Standards Verification Plan developed by Respondent and approved by EPA, including any additional activities required by Sections IX, X, and XI, to ensure the effectiveness of the implemented remedy confirming over time that all Performance Standards are met.

L. "Performance Standards" shall mean those cleanup standards, standards of control, and other substantive requirements, criteria or limitations, identified in the ROD, the Statement of Work, the Remedial Action Work Plan and the Remedial Design Work Plan developed by Respondent and approved by EPA pursuant to this Order, including any additional activities required by Sections IX, X, and XI.

M. "Pollutant or Contaminant" shall mean any substance defined in Section 101(33) of CERCLA, 42 U.S.C. § 9601(33).

N. "Record of Decision" or "ROD" shall mean the EPA Record of Decision relating to the Carrier Air Conditioning Superfund Site which was signed on September 3, 1992, by the Regional Administrator, EPA Region IV, including all attachments thereto. The ROD is attached as Appendix 1 and incorporated herein by reference.

O. "Remedial Action" or "RA" shall mean all property acquisition, excavation, transportation, construction, treatment, field engineering or other similar activities required by the ROD, Tasks III, IV and V of the Statement of Work, and the Remedial Action Work Plan developed by Respondent and approved by EPA pursuant to this Order and any additional activities required by Sections IX, X, and XI.

P. "Remedial Design" or "RD" shall mean all studies, investigations or surveys conducted and plans and specifications prepared that are necessary to implement the Remedial Action, Operation and Maintenance, and Performance Monitoring activities required by the ROD, Tasks I and II of the Statement of Work, and the Remedial Design Work Plan developed by Respondent and approved by EPA pursuant to this Order, including any additional activities required by Sections IX, X, and XI.

Q. "Respondent" shall mean the Carrier Corporation.

R. "Response Costs" shall mean any costs, including indirect costs, incurred by the United States pursuant to 42 U.S.C. § 9601 et seq.

S. "Statement of Work or "SOW" shall mean the statement of work for implementation of the Remedial Design, Remedial Action, Operation and Maintenance, and Performance Monitoring work at the Site. The SOW is attached hereto as Appendix 2 and is incorporated herein by reference.

T. "Section" shall mean a portion of this Order identified by a Roman numeral.

U. "Site" shall mean the Carrier Air Conditioning Superfund Site, encompassing approximately 135 acres, located on Byhalia Road in Collierville, Shelby County, Tennessee, together with all areas to which hazardous substances released at this parcel have migrated and all areas in close proximity to the contamination that are necessary for implementation of the Work, as generally depicted on the map attached hereto as Appendix 3.

V. "State" shall mean the State of Tennessee Department of

Environment and Conservation and any successor departments or agencies of the State of Tennessee.

W. "United States" shall mean the United States of America, including the Department of Justice and EPA.

X. "Work" shall mean all activities Respondent is required to perform under this Order, including Remedial Design, Remedial Action, Operation and Maintenance, and Performance Monitoring in accordance with Section VIII hereof, and any schedules or plans required to be submitted pursuant thereto, including any additional work required under Sections IX, X, XI, XII, XIV, and XVI.

IV. FINDINGS OF FACT

A. The Site is located in Collierville, Shelby County, Tennessee, on Byhalia Road, near the intersection of Poplar Avenue and Byhalia Road. The Site is located on the western side of the Town of Collierville, and Collierville is approximately 21 miles east of downtown Memphis, Tennessee.

B. Carrier operates a heating and air conditioning unit manufacturing facility on the approximately 135-acre parcel of land, which comprises a majority of the Site. Carrier is the principal owner of the parcel.

C. In 1979 and 1985, two discrete releases of trichloroethylene (TCE) occurred at the facility. TCE was used as a solvent in the manufacturing process. In addition, a wastewater lagoon, operated from about 1972 to 1979, apparently contained waste contaminated with TCE and zinc. In 1986, low levels of TCE were detected in one of the extraction wells at the Town of

Collierville's Water Plant 2.

D. On February 21, 1990, (55 Fed. Reg. 6154), pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, EPA placed the Site on the National Priorities List, set forth at 40 C.F.R. Part 300, Appendix B.

E. In response to a release or a substantial threat of a release of hazardous substances at or from the Site, Carrier conducted a Remedial Investigation/Feasibility Study (RI/FS) for the Site pursuant to 40 C.F.R. § 300.430. Carrier commenced the RI/FS in accordance with a Administrative Order by Consent executed on September 28, 1989.

F. The RI/FS was completed by Carrier in April 1992, and confirmed the presence of hazardous substances in the soil at the Site and in the groundwater beneath and beyond such disposal areas. A risk assessment was performed as a part of the RI/FS to determine the pathways of exposure to hazardous substances at or from the Site and the risks of harm to human health as a result of such exposure. The following hazardous substances found in the soil and in the groundwater beneath the Site were selected as contaminants of concern for purposes of conducting the risk assessment: TCE, dichloroethylene (DCE), tetrachloroethylene (PCE), 1,2-dichloroethane (DCA), vinyl chloride, lead and zinc.

G. The baseline risk assessment contained in the RI/FS concludes that the primary health risk posed by the Site is through ingestion and inhalation of TCE and lead in untreated groundwater beneath the Site.

H. Pursuant to Section 117 of CERCLA, 42 U.S.C. § 9617, EPA

published notice of the completion of the FS and of the proposed plan for remedial action on April 21, 1992, in a major newspaper of general circulation in Shelby County, Tennessee, and provided opportunity for public comment on the proposed remedial action.

I. The decision by EPA on the remedial action to be implemented at the Site is embodied in a Record of Decision ("ROD"), executed on September 3, 1992, on which the State has given its concurrence. The Record of Decision is attached to this Order as Appendix 1 and is incorporated herein by reference. The ROD is supported by an administrative record that contains the documents and information upon which EPA based the selection of the response action. The administrative record is located and is available to the public at EPA's offices in Atlanta, Georgia and at the Shelby County Public Library located in Collierville, Tennessee.

J. The remedy set forth in the ROD includes:

a. remediation of contaminated soils and shallow ground water in the old lagoon area and main plant source areas through the use of soil vapor extraction;

b. extraction of contaminated ground water from Memphis Sands aquifer by Town of Collierville Water Plant 2 currently-operating wells and subsequent treatment of the water through air stripping;

c. discharge of treated ground water into (1) a municipal water supply, (2) a local publicly-owned treatment works, (3) surface water, or (4) the Memphis Sands aquifer;

d. periodic monitoring to assess the effectiveness of the

remedy for a period of up to thirty (30) years; and

e. placement of institutional controls on well construction and water use in the general area.

K. Based on the current and future uses of ground water, the remedy is designed to prevent the migration of contaminants from the shallow water bearing zone to the Memphis Sands aquifer in order to maintain (and, eventually, enhance) the quality of the Memphis Sands aquifer.

V. CONCLUSIONS OF LAW AND DETERMINATIONS

A. The Carrier Air Conditioning Superfund Site is a "facility" as defined in Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

B. Respondent is a "person" as defined in Section 101(21) of CERCLA, 42 U.S.C. § 9601(21).

C. Respondent is a "liable party" as defined in Section 107(a) of CERCLA, 42 U.S.C. § 9607(a).

D. The contaminants found at the Site are "hazardous substances" as defined in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

E. These hazardous substances have been released into the soils and groundwater at and from the Site.

F. The past disposal and present migration of hazardous substances at and from the Site are a "release" as defined in Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

G. The potential for future migration of hazardous substances at and from the Site poses a threat of a "release" as defined in Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

H. The release and threat of release of one or more hazardous substances at and from the Site may present an imminent and

substantial endangerment to the public health or welfare or the environment.

I. The actions required by this Order are necessary to protect the public health, welfare, and the environment.

VI. NOTICE TO THE STATE

On January 20, 1993, prior to issuing this Order, EPA notified the State that EPA would be issuing this Order.

VII. ORDER

Based on the foregoing, Respondent is hereby ordered to comply with this Order, including but not limited to all Appendices to this Order, all documents incorporated by reference into or to be developed pursuant to this Order, and all schedules and deadlines in this Order, attached to this Order, incorporated by reference into this Order, or to be developed pursuant to this Order.

VIII. WORK TO BE PERFORMED

A. Appendix 2 to this Order is the SOW which sets forth the major tasks that must be completed by Respondent to implement the Work for the Site. The SOW is incorporated into this Order by reference as if fully set forth herein and is thereby both a requirement and an enforceable part of this Order.

B. Respondent shall cooperate with EPA in providing information regarding the Work to the public. As requested by EPA, Respondent shall participate in the preparation of such information for distribution to the public and in public meetings which may be held or sponsored by EPA to explain activities at or relating to the Site.

C. All aspects of the Work to be performed by Respondent

pursuant to this Order shall be under the direction and supervision of a qualified contractor ("supervising contractor") who shall be a qualified professional engineer or geologist with expertise in hazardous waste cleanups, the selection of which shall be subject to approval by EPA. Within seven (7) days after the effective date of this Order, Respondent shall submit to EPA in writing the name, title, and qualifications of the supervising contractor, including primary support entities and staff, proposed to be used in carrying out any Work performed under this Order.

D. If EPA disapproves of the selection of the supervising contractor, Respondent shall submit to EPA within fifteen (15) calendar days after receipt of EPA's disapproval of the supervising contractor previously selected, a list of contractors, including primary support entities and staff, that would be acceptable to Respondent. EPA shall, after receipt of the list, provide written notice of the names of the contractors it approves, if any. Respondent may select any approved contractor from that list and shall notify EPA of the name of the supervising contractor selected within ten (10) days of EPA's designation of approved contractors.

E. If at any time thereafter, Respondent proposes to use a different supervising contractor for Work at the Site, Respondent shall notify EPA and shall obtain approval from EPA before a new supervising contractor performs any Work under this Order. Any change in the supervising contractor made pursuant to this paragraph, shall not excuse any Work, deadlines, or schedules

required under this Order.

F. The purpose of the Remedial Design/Remedial Action is to design, construct, operate and maintain, and monitor the performance of the selected remedy to ensure protection of human health and the environment. The Remedial Design (discussed in Paragraph G, below) includes those activities to be undertaken by Respondent to develop the final plans and specifications, general provisions, and special requirements necessary to translate the ROD into the remedy to be constructed under the Remedial Action phase (discussed in more detail in Paragraph H, below). The Remedial Action involves the implementation phase of Site cleanup or actual construction of the remedy. The RA is based on the RD to achieve at the Site the Performance Standards specified in the ROD. The major tasks that Respondent must complete and the deliverables associated with each task to support the RD/RA are described in the SOW. EPA approval of a task or deliverable shall not be construed as a guarantee as to the ultimate adequacy of such a task or deliverable.

G. Remedial Design - Within sixty (60) days after the effective date of this Order, Respondent shall submit a work plan for the Remedial Design at the Site ("Remedial Design Work Plan" or "RD Work Plan") to EPA for review, modification and/or approval. The RD Work Plan shall be developed in accordance with the SOW and be consistent with the ROD, EPA Superfund Remedial Design and Remedial Action Guidance, and any additional guidance documents identified by EPA. Upon approval by EPA, the RD Work Plan is incorporated into and becomes enforceable under this Order as if

fully set forth herein. Any violation of the approved RD Work Plan shall be a violation of this Order. Upon approval of the RD Work Plan by EPA, Respondent shall implement the Work Plan in accordance with the schedule therein. Unless otherwise directed by EPA, Respondent shall not commence field activities or Work required by the RD Work Plan at the Site until written approval of the RD Work Plan by EPA is received.

H. Remedial Action - As required by the SOW, Respondent shall submit for review, modification, and/or approval by EPA, a work plan for the performance of the Remedial Action at the Site ("Remedial Action Work Plan" or "RA Work Plan"). The RA Work Plan shall be developed in accordance with the SOW and be consistent with the ROD, EPA Superfund Remedial Action Guidance and any additional guidance documents identified by EPA. The Remedial Action Work Plan shall include, but not be limited to, the following: (1) a schedule for completion of each required activity including developing and submitting other required Remedial Action plans, i.e. the Prefinal Inspection Report and Remedial Action Report (as such terms are defined in the SOW); (2) a Construction Management Plan; (3) a method for selection of the construction contractor; (4) a Construction Quality Assurance Project Plan ("CQAPP") including procedures and plans for the decontamination of equipment and the disposal of contaminated materials, if necessary; (5) a methodology for implementation of the Construction Health and Safety Plan, if necessary; and (6) a Performance Standards Verification Plan. The CQAPP, which shall detail the approach to quality assurance during construction

activities at the Site, shall specify an Independent Quality Assurance Team (as defined in the SOW), to conduct a quality assurance program during the construction phase of the project. The Remedial Action Work Plan also shall include a schedule for implementation of all Remedial Action tasks identified in the final design submittal and shall identify the initial formulation of Respondent's Remedial Action Team (including, but not limited to, the supervising contractor).

Upon approval by EPA, the RA Work Plan is incorporated into this Order as a requirement of this Order and becomes an enforceable part of this Order as if fully set forth herein. Any violation of the approved RA Work Plan shall be a violation of this Order. Upon approval of the RA Work Plan and all Remedial Design documents by EPA, after reasonable opportunity for review and comment by the State, Respondent shall implement the RA Work Plan in accordance with the schedules set out therein. Unless otherwise directed by EPA, Respondent shall not commence physical on-site activities prior to approval of the RA Work Plan by EPA.

If Respondent seeks to retain a construction contractor to assist in the performance of the Remedial Action, then Respondent shall publish the solicitation documents within fifteen (15) days after approval of prefinal/final design. Respondent shall submit a copy of the contractor solicitation documents to EPA not later than five (5) days after publishing the solicitation documents.

Within forty-five (45) days after publishing solicitation documents, Respondent shall notify EPA in writing of the name, title, and qualifications of the construction contractor proposed

to be used in carrying out work under this Order. If at any time Respondent proposes to change the construction contractor, Respondent shall notify EPA immediately and shall obtain approval from EPA, as provided in this paragraph, before the new construction contractor performs any work under this Order. If EPA disapproves of the selection of any contractor as the construction contractor, Respondent shall submit a list of contractors that would be acceptable to them to EPA within fifteen (15) days after receipt of EPA's disapproval of the contractor previously selected. EPA will thereafter provide written notice of the names of the contractors it approves, if any. Respondent may select any approved contractor from that list and shall notify EPA of the name of the contractor selected within ten (10) days of EPA's designation of approved contractors.

I. Operation and Maintenance and Performance Monitoring - The Operation and Maintenance Plan shall be developed and submitted to EPA for review and approval in accordance with the SOW. Respondent shall also develop and submit the Performance Standards Verification Plan to EPA for review and approval in accordance with the SOW. Upon approval by EPA, the Respondent shall implement the Operation and Maintenance Plan and the Performance Monitoring Verification Plan.

J. Performance Standards - The Work performed by Respondent pursuant to this Order shall, at a minimum, achieve the Performance Standards.

J. Warranties - Notwithstanding any action by EPA, Respondent

remains fully responsible for achievement of the Performance Standards set forth in the Record of Decision and the Statement of Work. Nothing in this Order, or in EPA's approval of the Remedial Design or Remedial Action Work Plans, or approval of any other submission, shall be deemed to constitute a warranty or representation of any kind by EPA that full performance of the Remedial Design or Remedial Action will achieve the Performance Standards set forth in the ROD and in the Statement of Work. Respondent's compliance with such approved documents does not foreclose EPA from seeking additional response actions to achieve the applicable Performance Standards.

K. Notification of Off-Site Waste Shipment - All materials removed from the Site shall be disposed of or treated at a facility approved by the EPA Project Coordinator and in accordance with Section 121(d)(3) of CERCLA, 42 U.S.C. 9621(d)(3), with the U.S. EPA "Revised Off-Site Policy," OSWER Directive 9834.11, November 13, 1987; and with all other applicable federal, state, and local requirements. Respondent shall, prior to any off-Site shipment of hazardous substances from the Site to an off-Site waste management facility, provide written notification to the appropriate state environmental official in the receiving state and to the EPA Project Coordinator of such shipment of hazardous substances. However, the notification of shipments shall not apply to any off-Site shipments when the total volume of all shipments from the Site to the State will not exceed ten (10) cubic yards.

1. The notification shall be in writing, and shall include

the following information, where available: (a) the name and location of the facility to which the hazardous substances are to be shipped; (b) the type and quantity of the hazardous substances to be shipped; (c) the expected schedule for the shipment of the hazardous substances; and (d) the method of transportation.

Respondent shall notify the receiving state of major changes in the shipment plan, such as a decision to ship the hazardous substances to another facility within the same state, or to a facility in another state.

2. The identity of the receiving facility and state will be determined by Respondent following the award of the contract for Remedial Action construction. Respondent shall provide all relevant information on the off-Site shipments as soon as practicable after the award of the contract and before the hazardous substances are actually shipped.

3. The contents of this provision shall not be considered to be approval of the off-Site shipment of materials from the Site where the ROD requires treatment and/or storage on-Site.

IX. FAILURE TO ATTAIN PERFORMANCE STANDARDS

A. In the event that EPA determines that additional response actions are necessary to meet applicable Performance Standards, EPA shall notify Respondent that additional response actions are necessary.

B. Unless otherwise stated by EPA, within thirty (30) days of receipt of notice from EPA that additional response actions are necessary to meet applicable Performance Standards, Respondent shall submit to EPA for approval a work plan for the additional

response actions. The plan shall conform to the applicable requirements of Sections VIII, XIV, XV, and XVI as appropriate. Upon EPA's approval of the plan pursuant to Section XIII, the plan is incorporated into his Order as a requirement of this Order and shall be an enforceable part of this Order as if fully set forth herein. Upon approval by EPA, Respondent shall implement the plan for additional response actions in accordance with the schedule contained therein.

X. EPA PERIODIC REVIEW

Under Section 121(c) of CERCLA, 42 U.S.C. § 9621(c), and any applicable regulations, EPA may review the Site to assure that the Work performed pursuant to this Order adequately protects human health and the environment. Respondent shall conduct the requisite studies, investigations, or other response actions as determined necessary by EPA. As a result of any review performed under this paragraph, Respondent may be required to perform additional response actions or to modify the Work previously performed.

XI. ADDITIONAL RESPONSE ACTIONS

A. EPA may determine that in addition to the Work identified in this Order and attachments to this Order, additional response actions may be necessary to meet the Performance Standards or to protect human health and the environment. If EPA determines that additional response actions are necessary, EPA will notify Respondent and may require Respondent to submit a work plan for such additional response actions. EPA may also require Respondent to modify any plan, design, or other deliverable

required by this Order, including any approved modifications. Respondent shall notify EPA of its intent to perform such additional response actions within seven (7) days after receipt of EPA's request for additional response actions.

B. Unless otherwise stated by EPA, not later than thirty (30) days after receiving EPA's notice that additional response actions are required pursuant to this Section, Respondent shall submit a work plan for the additional response actions ("Additional Response Action Plan") to EPA for review and approval. The Additional Response Action Plan shall conform to the requirements in Section VIII, XIV, XV, and XVI as appropriate. Upon approval by EPA, the Additional Response Action Plan shall be incorporated into this Order as a requirement of this Order and shall be an enforceable part of this Order as if fully set forth herein. Upon approval of the Additional Response Action Plan pursuant to the procedures set forth in Section XIII, Respondent shall implement the Additional Response Action Plan according to the standards, specifications, and schedule in the approved Additional Response Action Plan.

XII. ENDANGERMENT AND EMERGENCY RESPONSE

A. In the event of any action or occurrence after the effective date of this Order which causes or threatens a release of a hazardous substance or which may present an immediate threat to public health or welfare or the environment, Respondent shall immediately take all appropriate action to prevent, abate, or minimize such release or endangerment, and shall immediately notify EPA's Project Coordinator, or, if the Project Coordinator

is unavailable, the EPA Emergency Response and Removal Branch, Region IV. Respondent shall take such action in consultation with EPA's Project Coordinator and in accordance with all applicable provisions of this Order, including, but not limited to, the Health and Safety Plans developed pursuant to the SOW. In the event that Respondent fails to take appropriate response action as required by this Section, and EPA takes that action instead, EPA reserves the right to pursue reimbursement of all EPA's costs attributable to the response action that are not inconsistent with the NCP.

B. Nothing in the preceding paragraph shall be deemed to limit any authority of the United States to take, direct, or order any appropriate action necessary to protect human health and the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances on, at, or from the Site.

XIII. EPA REVIEW OF SUBMISSIONS

A. Upon receipt of any plan, report, or other item which is required to be submitted for approval pursuant to this Order, EPA shall, in writing, either: (1) approve the submission; or (2) disapprove the submission, notifying Respondent of deficiencies. If such submission is disapproved, EPA shall either (1) notify Respondent that EPA will assume the responsibility for modifying the submission to correct the deficiencies, including, if necessary, the underlying Work; or (2) direct Respondent to modify the submission and, if necessary, the underlying Work, to correct the deficiencies.

B. In the event of approval or modification by EPA, Respondent shall proceed to take any action required by the plan, report, or other item, as approved or modified.

C. Upon receipt of a written notice of disapproval and directive for modification, Respondent shall, within thirty (30) days or such time as specified by EPA in its notice of disapproval or request for modification, correct the deficiencies and resubmit the plan, report, or other item for approval. Notwithstanding the notice of disapproval, Respondent shall proceed, at the direction of EPA, to take any action required by any nondeficient portion of the submission.

D. If, upon resubmission, the plan, report, or item is not approved, Respondent shall be deemed to be in violation of this Order.

E. The provisions of this Order shall govern all proceedings regarding the Work performed pursuant to this Order. In the event of any inconsistency between this Order and any required deliverable submitted by Respondent, the inconsistency will be resolved in favor of this Order.

XIV. PROGRESS REPORTS

A. In addition to the deliverables set forth in this Order, Respondent shall submit written monthly progress reports to EPA with respect to actions and activities undertaken pursuant to this Order. The progress reports shall be submitted on or before the 5th day of each month following the effective date of this Order. Respondent's obligation to submit progress reports continues until EPA gives Respondent written notice that

Respondent has demonstrated, to EPA's satisfaction, that all of the terms of this Order, including any additional tasks which EPA has determined to be necessary, have been completed. In addition, EPA may request periodic briefings by Respondent to discuss the progress of the Work.

B. At a minimum these progress reports shall: (1) describe the actions which have been taken to comply with this Order; (2) include all results of sampling and tests and all other data received by Respondent during the course of the Work; (3) include all plans, reports, deliverables, and procedures completed under the work plans during the previous month; (4) describe all work planned for the next month with schedules relating such work to the overall project schedule for RA completion; and (5) describe all problems encountered and any anticipated problems, any actual or anticipated delays, and solutions developed and implemented to mitigate or address any actual or anticipated problems or delays.

C. Upon the occurrence of any event during performance of the Work or additional response actions which, pursuant to Section 103 of CERCLA, 42 U.S.C. § 9603, requires reporting to the National Response Center, Respondent shall promptly orally notify the EPA Project Coordinator, or in the event of the unavailability of the EPA Project Coordinator, the Emergency Response and Removal Branch, Region IV, United States Environmental Protection Agency, in addition to the reporting required by Section 103 of CERCLA, 42 U.S.C. § 9603. Within ten (10) days of the onset of such an event, Respondent shall furnish to the EPA a written report setting forth the events which

occurred and the measures taken, and to be taken, in response thereto. Within thirty (30) days of the conclusion of such an event, Respondent shall submit a report setting forth all actions taken.

D. Respondent shall submit each year, within thirty (30) days of the anniversary of the effective date of this Order, a summary report to the EPA setting forth the status of the Work which shall at a minimum include a statement of tasks accomplished in the preceding year, a statement of tasks remaining to be accomplished, and provide a schedule for implementation of the remaining Work.

XV. QUALITY ASSURANCE SAMPLING AND DATA ANALYSIS

A. Respondent shall use the quality assurance, quality control, and chain of custody procedures in accordance with EPA's "Interim Guidelines and Specifications For Preparing Quality Assurance Project Plan" (QAMS-005/80) and the "EPA Region IV, Engineering Support Branch Standard Operating Procedures and Quality Assurance Manual" (U.S. EPA Region IV, Environmental Services Division, April 1, 1986) and subsequent amendments to such guidelines. Prior to the commencement of any monitoring project under this Order, Respondent shall initially submit for review, modification and/or approval by EPA a Quality Assurance Project Plan ("QAPP") that is consistent with applicable guidelines. This QAPP, upon approval, shall be sufficient to satisfy this requirement. All monitoring conducted under this Order shall be undertaken pursuant to this approved QAPP. Respondent shall assure that EPA personnel or authorized representatives are

allowed access to any laboratory utilized by Respondent in implementing this Order.

B. Respondent shall make available to EPA the results of all sampling and/or tests or other data generated by Respondent with respect to the implementation of this Order, and shall submit these results in monthly progress reports as described in Section XIV of this Order.

C. At the request of EPA, Respondent shall allow split or duplicate samples to be taken by EPA, and/or their authorized representatives, of any samples collected by Respondent pursuant to the implementation of this Order. Respondent shall notify EPA in writing not less than twenty (20) days in advance of any sample collection activity. In addition, EPA shall have the right to take any additional samples that EPA deems necessary.

D. Respondent shall ensure that the laboratory(ies) utilized by Respondent for analyses participates in an EPA quality assurance/quality control program equivalent to that which is followed by EPA and which is consistent with EPA document QAMS-005/80. In addition, EPA may require Respondent to submit data packages equivalent to those generated in the EPA Contract Laboratory Program (CLP) and may require laboratory analysis by Respondent of performance samples (blank and/or spike samples) in sufficient number to determine the capabilities of the laboratory.

E. Notwithstanding any provision of this Order, the United States hereby retains all of its information gathering, inspection and enforcement authorities and rights under CERCLA,

the Solid Waste Disposal Act (SWDA), 42 U.S.C. § 6901 et seq., and any other applicable statutes or regulations.

XVI. COMPLIANCE WITH APPLICABLE LAWS

A. All actions by Respondent pursuant to this Order shall be performed in accordance with the requirements of all applicable or relevant and appropriate laws, as required by CERCLA and the NCP. The United States has determined that the activities contemplated by this Order are consistent with the NCP.

B. Except as provided in Section 121(e) of CERCLA, 42 U.S.C. § 9621(e), and the NCP, no permit shall be required for any portion of the Work conducted entirely on the Site. Where any portion of the Work requires a federal or state permit or approval under CERCLA and the NCP, Respondent shall submit on a timely basis applications and take all other actions necessary to obtain all such permits or approvals.

C. This Order is not, and shall not be construed to be, a permit issued pursuant to any federal or state statute or regulation.

D. Respondent shall include in all contracts or subcontracts entered into for Work required under this Order provisions stating that such contractors or subcontractors, including their agents and employees, shall perform all activities required by such contracts or subcontracts in compliance with all applicable laws and regulations. Respondent shall provide a certification to the United States that such provision has been included in its contracts and subcontracts, within fifteen (15) days of final execution of contracts for Remedial Design, Remedial Action, Operation and Maintenance, and Performance Monitoring work.

XVII. PROJECT COORDINATOR

A. Within fifteen (15) days after the effective date of this Order, Respondent shall designate a Project Coordinator and shall submit the name, address, and telephone number of the Project Coordinator to EPA. Respondent's Project Coordinator shall be responsible for overseeing the implementation of this Order. If Respondent wishes to change its Project Coordinator, Respondent shall provide written notice to EPA, five (5) days prior to changing the Project Coordinator, of the name and qualifications of the new Project Coordinator.

B. All communications, whether written or oral, from Respondent to EPA shall be directed to EPA's Project Coordinator or Alternate Project Coordinator, who shall be a Remedial Project Manager (RPM). EPA's Project Coordinator is:

Beth Brown
Remedial Project Manager
United States Environmental Protection Agency
345 Courtland Street, NE
Atlanta, Georgia 30365
(404) 347-7791

EPA's Alternate Remedial Project Coordinator is:

Harold Taylor, Chief
KY/TN Section
North Superfund Remedial Section
United States Environmental Protection Agency
345 Courtland Street, NE
Atlanta, Georgia 30365
(404) 347-7791

C. EPA has the unreviewable right to change its Project Coordinator or Alternate Designated Project Coordinator. If EPA changes its Project Coordinator or Alternate Project Coordinator, EPA will inform Respondent in writing of the name, address, and telephone number of the new Project Coordinator or Alternate

Project Coordinator.

D. EPA's Project Coordinator and Alternate Project Coordinator shall have the authority lawfully vested in a Remedial Project Manager and On-Scene Coordinator by the National Contingency Plan, 40 C.F.R. Part 300. In addition, EPA's Project Coordinator or Alternate Project Coordinator shall have authority, consistent with the National Contingency Plan, to halt any work required by this Order and, to take any necessary response action when he or she determines that conditions at the Site may present an imminent and substantial endangerment to public health or welfare or the environment.

E. The absence of the EPA Project Coordinator from the Site shall not be cause for stoppage or delay of Work.

XVIII. SITE ACCESS

At all reasonable times from the effective date of this Order until EPA certifies completion of the Work pursuant to Section XXV of this Order, EPA and its authorized representatives and contractors shall have the authority to enter and freely move about all property at the Site and off-Site areas to which access is required to implement this Order, including areas subject to or affected by the clean up or where documents required to be prepared or maintained by this Order are located, to the extent access to the property is controlled by or available to Respondent. Access shall be allowed for the purposes of conducting any activity authorized by or related to this Order, including but not limited to: 1) inspecting conditions, activities, the results of activities, records, operating logs,

and contracts related to the Site or Respondent and its representatives or contractor pursuant to this Order; 2) reviewing the progress of Respondent in carrying out the terms of this Order; 3) conducting tests or inspections as EPA or its authorized representatives or contractors deem necessary to verify data or information submitted to EPA, take samples or investigate contamination at or near the Site; 4) assessing the need for planning and implementing additional remedial or response activities at or near the Site; or 5) using a camera, sound recording device or other documentary-type equipment.

XIX. ACCESS TO SITE NOT OWNED BY RESPONDENT

A. If the Site, or the off-Site area that is to be used for access, or other property subject to or affected by the clean up or where documents required to be prepared or maintained by this Order are located, is controlled or owned in whole or in part by parties other than those bound by this Order, Respondent will obtain, or use its best efforts to obtain, site access agreements from such parties within thirty (30) days of either the effective date of this Order or the date upon which it is determined that such access is necessary, whichever is later. Such agreements shall provide access for EPA, its contractors and oversight officials, the State and its contractors, and Respondent or Respondent's authorized representatives and contractors, and such agreements shall specify that Respondent is not EPA's representative with respect to liability associated with Site activities. Copies of such agreements shall be provided to EPA prior to Respondent's initiation of field activities requiring

such off-Site access. Respondent's best efforts shall include providing reasonable compensation to any off-Site property owner.

B. If access agreements are not obtained within the time referenced above, Respondent shall immediately notify EPA in writing of its failure to obtain access. EPA may use its legal authorities to obtain access for Respondent, may perform those tasks or activities with EPA contractors, or may terminate the Order if Respondent cannot obtain access agreements. If EPA performs those tasks or activities with EPA contractors and does not terminate the Order, Respondent shall perform all other activities not requiring access to that off-Site property, and shall be liable to EPA for reimbursement of all costs incurred in performing such activities. Respondent shall integrate the results of any such tasks undertaken by EPA into its reports and deliverables. EPA reserves the right to seek cost recovery for all costs and attorney fees incurred by the United States to obtain access for Respondent.

C. Notwithstanding any provision of this Order, the United States retains all of its access authorities and rights under CERCLA, SWDA and any other applicable statutes or regulations.

XX. ACCESS TO INFORMATION AND DATA/DOCUMENT AVAILABILITY

A. Respondent shall provide to EPA and its authorized representatives, upon request, access to inspect and/or copy all documents and information in their possession and/or control or that of its contractors or agents relating to activities at the Site or to the implementation of this Order, including all files, records, documents, photographs, sampling and analysis records,

chain of custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information relating to remedial activities and other Work required under the Order.

B. Respondent may assert a claim of business confidentiality covering part or all of the information submitted to EPA pursuant to the terms of this Order under 40 C.F.R. § 2.203, to the extent permitted by and in accordance with Section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7). This claim shall be asserted in the manner described by 40 C.F.R. § 2.203(b) and substantiated by Respondent at the time the assertion is made. Information determined to be confidential by EPA will be given the protection specified in 40 C.F.R. Part 2. If no claim of confidentiality accompanies specific documents or information when it is submitted to EPA, or if EPA has notified the Respondent that the documents or information are not confidential under the standards of Section 104(e)(7) of CERCLA and 40 C.F.R. § 2.203(b), the public may be given access to such documents or information by EPA or the state without further notice to the Respondent.

C. Respondent shall not assert confidentiality claims with respect to any data related to Site conditions, sampling, or monitoring.

D. Respondent shall maintain for the period during which this Order is in effect, an index of documents that Respondent claims contain privileged information or confidential business information. The index shall contain, for each document, the date, author, addressee, and subject of the document. Upon

written request from EPA, Respondent shall submit a copy of the index to EPA.

XXI. RECORD PRESERVATION

A. Respondent shall provide to EPA upon request, copies of all documents and information within, or which come within, their possession and/or control or the control of their contractors or agents relating to activities at the Site or to the implementation of this Order, including but not limited to sampling, analysis, chain of custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information related to the Work.

Respondent shall also make available to EPA for purposes of investigation, information gathering, or testimony, their employees, agents, or representatives with knowledge of relevant facts concerning the performance of the Work.

B. Until EPA issuance of the Certification of Completion of the Work pursuant to Section XXV and termination of this Order, Respondent shall preserve, and shall instruct their contractors and agents to preserve, all documents, records, and information of whatever kind, nature, or description relating to the performance of the Work.

C. All records and documents in Respondent's possession at any time prior to termination of this Order that relate in any way to the Site shall be preserved and retained by Respondent for a minimum of ten (10) years after EPA certification of completion of all requirements under this Order. Respondent shall acquire and retain copies of all documents that relate to the Site and

are in the possession of its employees, agents, accountants, contractors, or attorneys. After this ten (10)-year period, Respondent shall notify EPA at least ninety (90) days before the documents are scheduled to be destroyed and shall relinquish custody of said records or documents to EPA at no cost, upon request.

D. EPA has the discretion to request that all records and documents be retained for a longer period of time by Respondent.

XXII. DELAY IN PERFORMANCE

A. Any delay in performance of this Order that, in EPA's judgment, is not properly justified by Respondent under the terms of this paragraph shall be considered a violation of this Order.

Any delay in performance of this Order shall not affect Respondent's obligations to fully perform all obligations under the terms and conditions of this Order.

B. Respondent shall notify EPA of any delay or anticipated delay in achieving compliance with any requirement of this Order. Such notification shall be made by telephone to EPA's Designated Project Coordinator or Alternate Designated Project Coordinator within 48 hours after Respondent first knew or should have known that an event might cause a delay. Within five (5) business days after notifying EPA by telephone, Respondent shall provide written notification fully describing the nature of the delay, the reasons the delay is beyond the control of Respondent, any defenses under Section 106(b)(1), 42 U.S.C. § 9606(b)(1), available to Respondent for failing to comply with any relevant requirements of this Order, and a schedule for implementing the

measures that will be taken to mitigate the effect of the delay. Respondent shall adopt all reasonable measures to avoid or minimize any such delay. Increased costs or expenses associated with implementation of the activities called for in this document shall not be considered circumstances beyond the control of Respondent.

XXIII. ASSURANCE OF ABILITY TO COMPLETE WORK AND INSURANCE

A. Respondent shall demonstrate its ability to complete the Work required by this Order and to pay all claims that arise from the performance of the Work by obtaining, and presenting to EPA within thirty (30) days of the effective date of this Order, one of the following: (1) a performance bond; (2) a letter or letters of credit; (3) a guarantee by a third party; or (4) internal financial information to allow EPA to determine that Respondent has sufficient assets available to perform the Work. Respondent shall demonstrate financial assurance in an amount no less than the highest estimate of cost for the Remedial Design and Remedial Action contained in the Record of Decision for the Site. If Respondent seeks to demonstrate ability to complete the Work by means of internal financial information, or by guarantee of a third party, they shall re-submit that information annually for that portion of the initially-assured amount that has not yet been expended, on the anniversary of the effective date of this Order. If EPA determines that such internal financial information is inadequate, Respondent shall, within thirty (30) days after receipt of written notice of EPA's determination, obtain and present to EPA for approval one of the other three

forms of financial assurance listed above, Respondent's lack of ability to demonstrate financial ability to complete work shall not excuse performance of this Order or any term thereof.

B. No later than ten (10) days prior to commencing any Work at the Site pursuant to this Order, Respondent shall secure, and shall maintain until the fifth anniversary of the issuance of the Certificate of Completion under this Order comprehensive general liability and automobile insurance with limits of at least one (1) million dollars, combined single limit. In addition, Respondent shall submit to EPA a certification that its contractors and subcontractors have adequate insurance coverage or have indemnification for liabilities for injuries or damages to persons or property which may result from the activities to be conducted by or on behalf of Respondent pursuant to this Order. Respondent shall ensure that such insurance or indemnification is maintained for the duration of the Work required by this Order. Prior to commencement of the Work under this Order, Respondent shall provide to EPA certificates of insurance and a copy of the insurance policy. If Respondent demonstrates by evidence satisfactory to EPA that any contractor or subcontractor maintains insurance equivalent to that described above, or insurance covering the same risks but in a lesser amount, then, with respect to that contractor or subcontractor, Respondent need provide only that portion of the insurance described above which is not maintained by the contractor or subcontractor.

C. For the duration of this Order, Respondent shall satisfy, or shall ensure that their contractors or subcontractors satisfy,

all applicable laws and regulations regarding the provision of workers' compensation insurance for all persons performing work on behalf of Respondent in furtherance of this Order.

XXIV. UNITED STATES NOT LIABLE

The United States, by issuance of this Order, assumes no liability for any injuries or damages to persons or property resulting from acts or omissions by Respondent, or its directors, officers, employees, agents, representatives, successors, assigns, contractors, or consultants in carrying out any action or activity pursuant to this Order. Neither EPA nor the United States may be deemed to be a party to any contract entered into by Respondent or its directors, officers, employees, agents, successors, assigns, contractors, or consultants in carrying out any action or activity pursuant to this Order.

XXV. CERTIFICATION OF COMPLETION

Within ninety (90) days after Respondent concludes that all phases of the Work have been fully performed, that the Performance Standards have been attained, and that all Operation and Maintenance and Performance Monitoring activities have been completed, Respondent shall submit to EPA a written report by a registered professional engineer or geologist certifying that the Work has been completed in full satisfaction of the requirements of this Order. EPA shall require such additional activities as may be necessary to complete the Work or EPA may, based upon present knowledge and Respondent's certification to EPA, issue written notification to Respondent that the Work has been completed. EPA's notification shall not limit EPA's right to

perform periodic reviews pursuant to Section 121(c) of CERCLA, 42 U.S.C. § 9621(c), or to take or require any action that in the judgment of EPA is appropriate at the Site, in accordance with 42 U.S.C. §§ 9604, 9606, or 9607.

XXVI. ENFORCEMENT AND RESERVATIONS

- A. EPA reserves the right to bring an action against Respondent under Section 107 of CERCLA, 42 U.S.C. § 9607, for recovery of any response costs incurred by the United States related to this Order and not previously reimbursed by Respondent. This reservation shall include but not be limited to past costs, indirect costs, the cost of oversight, costs for compiling the cost documentation to support oversight cost demands, as well as accrual of interest as provided in Section 107(a) of CERCLA.
- B. Notwithstanding any other provision of this Order, at any time during the response action, EPA may perform its own studies, complete the response action (or any portion of the response action) as provided in CERCLA and the NCP, and seek reimbursement from Respondent for its costs, or seek any other appropriate relief.
- C. Nothing herein shall preclude EPA from continuing any existing enforcement actions and/or taking any additional enforcement actions, including modification of this Order or issuance of additional orders, and/or additional remedial or removal actions as EPA may deem necessary, or from requiring Respondent in the future to perform additional activities pursuant to CERCLA Section 106(a), 42 U.S.C. § 9606(a), or any other applicable law, or from seeking judicial enforcement of

this Order. Respondent shall be liable under CERCLA Section 107(a), 42 U.S.C. § 9607(a), for the costs of any such additional actions.

D. Notwithstanding any provision of this Order, the United States hereby retains all of its information gathering, inspection and enforcement authorities and rights under CERCLA, SWDA, and any other applicable statutes and regulations.

E. Respondent shall be subject to civil penalties under Section 106(b) of CERCLA, 42 U.S.C. § 9606(b), of not more than \$25,000 for each day in which a violation of this Order occurs or such failure to comply continues. Failure to comply with this Order, or any portion hereof, without sufficient cause, may result in liability under Section 107(c)(3) of CERCLA, 42 U.S.C.

§ 9607(c)(3), for punitive damages in an amount at least equal to, and not more than three times the amount of any costs incurred by the Fund (as defined in CERCLA) as a result of such failure to take proper action.

F. Nothing in this Order shall constitute or be construed as a release from any claim, cause of action or demand in law or equity against any person, firm, partnership, subsidiary or corporation for any liability EPA or the United States may have arising out of or relating in any way to the Site.

XXVII. REIMBURSEMENT OF RESPONSE COSTS

A. EPA reserves the right, upon written request, to demand that Respondent reimburse EPA for all response costs incurred by the United States including those costs incurred in overseeing Respondent's implementation of the requirements of this Order or

in performing any response action which Respondent fails to perform pursuant to this Order. EPA may submit to Respondent on a periodic basis an accounting of all response costs incurred by the United States with respect to this Order. Response costs may include, but are not limited to, costs incurred by the United States in overseeing Respondent's implementation of the requirements of this Order and in performing activities as part of the RD/RA and community relations, including any costs incurred while obtaining access for Respondent. Costs shall include all direct and indirect costs, including, but not limited to, time and travel costs of EPA personnel and associated indirect costs, contractor costs, cooperative agreement costs, compliance monitoring, including the collection and analysis of split samples, inspection of RD/RA activities, Site visits, discussions regarding disputes that may arise as a result of this Order, review and approval or disapproval of reports, and costs of performing any Work Respondent is required to perform under this Order. EPA's certified Agency Financial Management System summary data (SPUR Reports), or such other data summary as certified by EPA, shall serve as the basis for payment demands.

B. EPA's demand for payment shall request that Respondent, within thirty (30) days of receipt of each EPA accounting, remit a certified or cashier's check for the amount of those costs. Interest shall accrue from either the date that payment of a specified amount is demanded in writing or the date of the expenditure, whichever is later. The interest rate is the rate established by the Department of the Treasury pursuant to 31

U.S.C. § 3717 and 4 C.F.R. § 102.13.

C. Checks shall be made payable to "EPA Hazardous Substances Superfund" and shall include the name of the Site, the Site identification number, the account number and the title of this Order. Checks shall be forwarded to:

EPA-REGION IV
Attn: Superfund Accounting
P.O. Box 100142
Atlanta, GA 30384

D. Respondent shall send copies of each check and transmittal letter to EPA's Project Coordinator and to:

Ms. Carolyn McCall
Environmental Protection Specialist
Cost Recovery Section
345 Courtland Street, N.E.
Atlanta, Georgia 30365

XXVIII. EFFECTIVE DATE AND COMPUTATION OF TIME

This Order shall be effective five (5) days after signature by the Director, Waste Management Division. All times for performance of ordered activities shall be calculated from this effective date. When computing any period of time under this Order, if the last day would fall on a Saturday, Sunday, or legal holiday, the period shall run until the next working day.

XXIX. NOTICE OF INTENT TO COMPLY

Respondent shall provide, not later than five (5) days after the effective date of this Order, written or verbal notice to EPA stating whether they will comply with the terms of this Order. Any verbal notice must be confirmed in writing within two (2) days of the giving of such verbal notice. If Respondent does not unequivocally commit to perform the RD, RA, O&M, and Performance

Monitoring as provided by this Order, they shall be deemed to have violated this Order and to have failed and refused to comply with this Order. The written notice or written confirmation required by this paragraph shall set forth, using facts that exist on or prior to the effective date of this Order, any "sufficient cause" defenses asserted by Respondent under Sections 106(b) and 107(c)(3) of CERCLA.

XXX. OPPORTUNITY TO CONFER

A. Respondent may, not later than three (3) days after the effective date of this Order, make a written or oral request for a conference with EPA, Region IV to discuss this Order. If requested, the conference shall occur at 345 Courtland Street, Atlanta, Georgia 30365. All telephone communications regarding a conference should be directed to Peter J. Raack at (404) 347-2641, extension 2243, or to Beth Brown at (404) 347-7791. The written request for a conference and notice of intent (or written confirmation, as the case may be) may be delivered to EPA by some means of personal delivery other than certified mail.

B. The purpose and scope of the conference shall be limited to issues involving the implementation of the response actions required by this Order and the extent to which Respondent intends to comply with this Order. This conference is not an evidentiary hearing, and does not constitute a proceeding to challenge this Order. It does not give Respondent a right to seek review of this Order, or to seek resolution of potential liability, and no official stenographic record of the conference will be made. At any conference held pursuant to Respondent's request, Respondent

may appear in person or by an attorney or other representatives.

XXXI. MODIFICATION

No material modifications shall be made to this Order without written notification to and written approval by EPA. The notification required by this Section shall set forth the nature of and reasons for the requested modification. No oral modification of this Order shall be effective. Modifications that do not materially alter the requirements of this Order, such as minor schedule changes, may be made upon the written approval of EPA. Nothing in this paragraph shall be deemed to alter EPA's authority to supervise and modify this Order.

So Ordered, this 11th day of February, 1993.

BY: Joseph R. Franzmathes
Joseph R. Franzmathes
Director
Waste Management Division
Region IV
U.S. Environmental Protection Agency

DATE: 2/11/93

APPENDICES

Appendix 1

Record of Decision

Appendix 2

Statement of Work

Appendix 3

Site Map

CARRIER AIR CONDITIONING SUPERFUND SITE



STATEMENT OF WORK
FOR RD/RA
UNILATERAL ADMINISTRATIVE ORDER

**STATEMENT OF WORK
REMEDIAL DESIGN AND REMEDIAL ACTION
CARRIER A.C. SUPERFUND SITE**

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**STATEMENT OF WORK
REMEDIAL DESIGN AND REMEDIAL ACTION
CARRIER A.C. SUPERFUND SITE**

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I. INTRODUCTION

This Statement of Work (SOW) outlines the work to be performed by the Respondent at the Carrier Air Conditioning Superfund Site in Shelby County, Tennessee ("the Site"). The work outlined is intended to fully implement the remedy as described in the Record of Decision (ROD) for the Site, dated September 3, 1992, and to achieve the Performance Standards set forth in the ROD, and defined in the Unilateral Administrative Order (UAO) and this SOW. The requirements of this SOW will be further detailed in work plans and other documents to be submitted by the Respondent for approval as set forth in this SOW. It is not the intent of this document to provide task specific engineering or geological guidance. The definitions set forth in Section III of the UAO shall also apply to this SOW unless expressly provided otherwise herein.

The Respondent is responsible for performing the Work to implement the selected remedy. EPA shall conduct oversight of the Respondent's activities throughout the performance of the Work. The Respondent shall assist EPA in conducting oversight activities.

EPA review or approval of a task or deliverable shall not be construed as a guarantee as to the adequacy of such task or deliverable. If EPA modifies a deliverable pursuant to Section XIII of the UAO, such deliverable as modified shall be deemed approved by EPA for purposes of this SOW. A summary of the major deliverables that the Respondent shall submit for the Work is attached.

II. OVERVIEW OF THE REMEDY

THE OBJECTIVES OF THIS REMEDIAL ACTION ARE TO:

Prevent ingestion of groundwater contaminated at or above mandated Maximum Contaminant Levels (MCLs) and Maximum Contaminant Level Goals (MCLGs);

Restore the Memphis Sand aquifer to levels below MCLs and MCLGs;

Prevent further contamination of the Memphis Sand aquifer; and

Prevent migration of contaminants from soils that cause the Memphis Sand aquifer groundwater to exceed MCLs and MCLGs.

III. REMEDY COMPONENTS

The selected remedy shall include the following: (1) the North Remediation System (NRS)

and plant area soil vapor extraction (SVE); (2) groundwater containment/treatment at Water Plant 2, and supplemental extraction well(s)/treatment via air stripping; and (3) institutional controls placed on well construction and water use in the general area of the Site.

A. Components

The major components of the remedy are described in Section 9.0, the Selected Remedy section of the Record of Decision.

B. Treatment

The treatment technologies for the remedy are described in Section 9.0, the Selected Remedy section of the Record of Decision.

C. Performance Standards

The Respondent shall meet all Performance Standards, as defined in the UAO including the standards set forth in the Record of Decision and identified by EPA during Remedial Design.

The Respondent shall operate the soil and groundwater treatment technologies until the Respondent has demonstrated compliance with the respective Performance Standards, in accordance with the Performance Standards Verification Plan.

D. Compliance Testing

The Respondent shall perform compliance testing to ensure that all Performance Standards are met. The treated soils and groundwater shall be tested in accordance with the Performance Standard Verification Plan developed pursuant to Task V of this SOW. After demonstration of compliance with Performance Standards, the Respondent shall monitor the groundwater for a minimum of five years. If monitoring indicates that the Performance Standards set forth in Section 9.0 of the Record of Decision are not being achieved at any time after pumping has been discontinued, extraction and treatment of the groundwater will recommence until the Performance Standards are achieved. If testing of treated soils indicates the Performance Standards have not been achieved, EPA may reevaluate the effectiveness of the source control component.

E. Treatability Studies

Within sixty (60) days after the UAO effective date, the Respondent shall submit a

Treatability Study Work Plan to determine if the selected remedy will attain design criteria. The Respondent shall use the study results and Site specific operating conditions in the detailed design of the selected remedy. EPA will evaluate the results of the treatability study to determine whether the proposed treatment will attain the Performance Standards. The Respondent shall submit the Preliminary Design submittal to EPA no later than 30 days following completion of the study and no later than 120 days following EPA's approval of the Treatability Study Work Plan, or such other longer time as specified by EPA. The specific details relating to the Treatability Study requirements are covered in Section IV, Task II of this SOW.

IV. PLANNING AND DELIVERABLES

The specific scope of this work shall be documented by the Respondent in a Remedial Design (RD) Work Plan and a Remedial Action (RA) Work Plan. Plans, specifications, submittals, and other deliverables shall be subject to EPA review and approval in accordance with Section XIII of the UAO.

The Respondent shall submit a technical memorandum documenting any need for additional data along with the proposed Data Quality Objectives (DQOs) whenever such requirements are identified. The Respondent is responsible for fulfilling additional data and analysis needs identified by EPA during the RD/RA process consistent with the general scope and objectives of the UAO, including this SOW.

The Respondent shall perform the following tasks:

TASK I - PROJECT PLANNING

A. Site Background

The Respondent shall gather and evaluate the existing information regarding the Site and shall conduct visits to the Site as needed to assist in planning the RD/RA:

1. **Collect and Evaluate Existing Data and Document the Need for Additional Data**

Before planning RD/RA activities, all existing Site data shall be thoroughly compiled and reviewed by the Respondent. Specifically, this shall include the ROD, RI/FS, and other available data related to the Site. This information shall be utilized in determining additional data needed for RD/RA implementation. Final decisions on the necessary data and DQOs

shall be made by EPA.

2. Conduct Site Visit

The Respondent shall conduct a visit to the Site with the EPA Project Coordinator if needed during the project planning phase to assist in developing a conceptual understanding of the RD/RA requirements for the Site. Information gathered during this visit shall be utilized to plan the project and to determine the extent of the additional data necessary to implement the RD/RA.

B. Project Planning

Once the Respondent has collected and evaluated existing Site data, the specific project scope shall be planned. The Respondent shall meet with EPA at the completion of this evaluation and discuss design activities before proceeding with Task II.

TASK II - REMEDIAL DESIGN

The Remedial Design shall provide the technical details for implementation of the Remedial Action in accordance with currently accepted environmental protection technologies and standard professional engineering and construction practices. The design shall include clear and comprehensive design plans and specifications.

A. Remedial Design Planning

At the conclusion of the project planning phase, no later than sixty (60) days after the UAO effective date, the Respondent shall submit an RD Work Plan, a Sampling and Analysis Plan, a Health and Safety Plan, and a Treatability Study Work Plan to EPA. The RD Work Plan, the Sampling and Analysis Plan and the Treatability Study Work Plan must be reviewed and approved by EPA and the Health and Safety Plan reviewed and commented on by EPA prior to the initiation of field activities. Upon approval of the RD Work Plan, the Respondent shall implement the RD Work Plan in accordance with the design management schedule contained therein. Plans, specifications, submittals, and other deliverables shall be subject to EPA review and approval in accordance with Section XIII of the UAO. Review and/or approval of design submittals only allows the Respondent to proceed to the next step of the design process. It does not imply acceptance of later design submittals that have not been reviewed, nor that the remedy, when constructed, will meet Performance Standards.

1. RD Work Plan

The Respondent shall submit a Remedial Design (RD) Work Plan to EPA for review and approval. The Work Plan shall be developed in conjunction with the Sampling and Analysis Plan, the Health and Safety Plan, and the Treatability Study Work Plan, although each plan may be delivered under separate cover. The Work Plan shall include a comprehensive description of the additional data collection and evaluation activities to be performed, if any, and the plans and specifications to be prepared. A comprehensive design management Gantt chart schedule for completion of each major activity and submission of each deliverable shall also be included.

Specifically, the Work Plan shall present the following in the text, or by reference to previously prepared Site documents:

- a. A statement of the problem(s) and potential problem(s) posed by the Site and the objectives of the RD/RA.
- b. A background summary setting forth the following:
 - 1) A brief description of the Site including the geographic location and the physiographic, hydrologic, geologic, demographic, ecological, and natural resource features;
 - 2) A brief synopsis of the history of the Site including a summary of past disposal practices and a description of previous responses that have been conducted by local, State, Federal, or private parties;
 - 3) A summary of the existing data including physical and chemical characteristics of the contaminants identified and their distribution among the environmental media at the Site.
- c. A list and detailed description of the tasks to be performed, information needed for each task, information to be produced during and at the conclusion of each task, and a description of the work products that shall be submitted to EPA. This description shall include the deliverables set forth in the remainder of Task II.
- d. A schedule with specific dates for completion of each required activity

and submission of each deliverable required by the UAO and this SOW. This schedule shall also include information regarding timing, initiation and completion of all critical path milestones for each activity and/or deliverable.

- e. A project management plan, including a data management plan, and provision for monthly reports to EPA, and meetings and presentations to EPA at the conclusion of each major phase of the RD/RA. The data management plan shall address the requirements for project management systems, including tracking, sorting, and retrieving the data along with an identification of the software to be used, minimum data requirements, data format and backup data management. The plan shall address both data management and document control for all activities conducted during the RD/RA.
- f. A description of the community relations support activities to be conducted during the RD. At EPA's request, the Respondent will assist EPA in preparing and disseminating information to the public regarding the RD work to be performed.

2. Sampling and Analysis Plan

The Respondent shall prepare a Sampling and Analysis Plan (SAP) to ensure that sample collection and analytical activities are conducted in accordance with technically acceptable protocols and that the data generated will meet the DQOs established. The SAP shall include a Field Sampling and Analysis Plan (FSAP). A Remedial Design/Remedial Action Quality Assurance Project Plan (QAPP) shall be submitted concurrently under separate cover.

The FSAP shall define in detail the sampling and data-gathering methods that shall be used on the project. It shall include sampling objectives, sample location (horizontal and vertical) and frequency, sampling equipment and procedures, and sample handling and analysis. The Field Sampling and Analysis Plan shall be written so that a field sampling team unfamiliar with the Site would be able to gather the samples and field information required. The Remedial Design/Remedial Action QAPP shall describe the project objectives and organization, functional activities, and quality assurance and quality control (QA/QC) protocols that shall be used to achieve the desired DQOs. The DQOs shall, at a minimum, reflect use of analytical methods for obtaining data of sufficient quality to meet National Contingency Plan

requirements as identified at 300.435 (b). The RD/RA Quality Assurance Plan shall be developed and implemented to ensure with a reasonable degree of certainty, that the completed Remedial Action meets or exceeds all design criteria, plans and specifications, and Performance Standards. At a minimum, the RD/RA Quality Assurance Plan shall include the following elements:

- a. The QAPP shall address personnel qualifications, sampling procedures, sample custody, analytical procedures, and data reduction, validation, and reporting. These procedures must be consistent with the Region IV Environmental Compliance Branch Standard Operating Procedures and Quality Assurance Manual and the guidances specified in Section XV of the UAO.
- b. A description of the quality control organization, including a chart showing lines of authority, identification of the members of the Independent Quality Assurance Team (IQAT), and acknowledgment that the IQAT will implement the control system for all aspects of the work specified and shall report to the Respondent and EPA. The IQAT members shall be representatives from testing and inspection organizations and/or the Supervising Contractor and shall be responsible for the QA/QC of the Remedial Action. The members of the IQAT shall have a good professional and ethical reputation, previous experience in the type of QA/QC activities to be implemented, and demonstrated capability to perform the required activities. They shall also be independent of the construction contractor.
- c. The name, qualifications, duties, authorities, and responsibilities of each person assigned a QC function.
- d. Description of the observations and control testing that will be used to monitor the construction and/or installation of the components of the RD/RA. The Respondent shall demonstrate in advance and to EPA's satisfaction that each laboratory it may use is qualified to conduct the proposed work and meets the requirements specified in Section XV of the UAO. EPA may require that the Respondent submit detailed information to demonstrate that the laboratory is qualified to conduct the work, including information on personnel qualifications, equipment and material specification, and laboratory analyses of

performance samples (blank and/or spike samples). In addition, EPA may require submittal of data packages equivalent to those generated by the EPA Contract Laboratory Program (CLP). Acceptance/Rejection criteria and plans for implementing corrective measures shall be addressed.

- e. A schedule for managing submittals, testing, inspections, and any other QA function (including those of contractors, subcontractors, fabricators, suppliers, purchasing agents, etc.) that involve assuring quality workmanship, verifying compliance with the plans and specifications, or any other QC objectives. Inspections shall verify compliance with all environmental requirements and include, but not be limited to, air quality and emissions monitoring records and waste disposal records, etc.
- f. Reporting procedures and reporting format for QA/QC activities including such items as daily summary reports, schedule of data submissions, inspection data sheets, problem identification and corrective measures reports, evaluation reports, acceptance reports, and final documentation.
- g. A list of definable features of the work to be performed. A definable feature of work is a task which is separate and distinct from other tasks and has separate control requirements.

3. Health and Safety Plan

The Respondent shall prepare an RD/RA Health and Safety Plan/Contingency Plan in conformance with the Respondent's health and safety program, and in compliance with OSHA regulations and protocols. The RD/RA Health and Safety Plan shall include a health and safety risk analysis, a description of monitoring and personal protective equipment, medical monitoring, and Site control. EPA will not approve the Respondent's RD/RA Health and Safety Plan/Contingency Plan, but rather EPA will review it to ensure that all necessary elements are included, and that the plan provides for the protection of human health and the environment. This plan shall include a Contingency Plan and incorporate Air Monitoring and Spill Control and Countermeasures Plans if determined by EPA to be applicable for the Site. The Contingency Plan is to be written for the on-Site construction workers and the local affected population. It shall include the following items:

- a. Name of person who will be responsible in the event of an emergency incident.
- b. Plan for initial Site safety indoctrination and training for all employees, name of the person who will give the training and the topics to be covered.
- c. Plan and date for meeting with the local community, including local, state and federal agencies involved in the cleanup, as well as the local emergency squads and the local hospitals.
- d. A list of the first aid and medical facilities including, location of first aid kits, names of personnel trained in first aid, a clearly marked map with the route to the nearest medical facility, all necessary emergency phone numbers conspicuously posted at the job site (i.e., fire, rescue, local hazardous material teams, National Emergency Response Team, etc.)
- e. Plans for protection of public and visitors to the job site.
- f. Air Monitoring Plan which incorporates the following requirements:
 - 1) Air monitoring shall be conducted both on the Site and at the perimeter of the Site. The chemical constituents that were identified during the Risk Assessment shall serve as a basis of the sampling for and measurement of pollutants in the atmosphere. The Respondent shall clearly identify these compounds and the detection and notification levels required in Paragraph 4 below. Air monitoring shall include personnel monitoring, on-Site area monitoring, and perimeter monitoring.
 - 2) Personnel Monitoring shall be conducted according to OSHA and NIOSH regulations and guidance.
 - 3) On-Site Area Monitoring shall consist of continuous real-time monitoring performed immediately adjacent to any waste excavation areas, treatment areas, and any other applicable areas when work is occurring. Measurements shall be taken in the breathing zones of personnel and immediately upwind and downwind of the work areas. Equipment shall include the following, at a minimum: organic vapor

meter, explosion meter, particulate monitoring equipment, and on-Site windsock.

4) Perimeter monitoring shall consist of monitoring airborne contaminants at the perimeter of the Site to determine whether harmful concentrations of toxic constituents are migrating off-Site. EPA approved methods shall be used for sampling and analysis of air at the Site perimeter. The results of the perimeter air monitoring and the on-Site meteorological station shall be used to assess the potential for off-Site exposure to toxic materials. The air monitoring program shall include provisions for notifying nearby residents, local, state and federal agencies in the event that unacceptable concentrations of airborne toxic constituents are migrating off-Site. The Respondent shall report detection of unacceptable levels of airborne contaminants to EPA in accordance with Section XV of the UAO.

g. A Spill Control and Countermeasures Plan which shall include the following:

- 1) Contingency measures for potential spills and discharges from materials handling and/or transportation.
- 2) A description of the methods, means, and facilities required to prevent contamination of soil, water, atmosphere, and uncontaminated structures, equipment, or material by spills or discharges.
- 3) A description of the equipment and personnel necessary to perform emergency measures required to contain any spillage and to remove spilled materials and soils or liquids that become contaminated due to spillage. This collected spill material must be properly disposed of.
- 4) A description of the equipment and personnel to perform decontamination measures that may be required for previously uncontaminated structures, equipment, or material.

4. Treatability Study Work Plan

The Respondent shall prepare a Treatability Study Work Plan for EPA review and approval. The purpose of the Treatability Study is to determine

if the particular technology or vendor of this technology is capable of meeting the Performance Standards. As provided for in the Record of Decision, the Treatability Study Work Plan shall describe the soil vapor extraction (SVE) technology to be tested, and test objectives, experimental procedures, treatability conditions to be tested, measurements of performance, analytical methods, data management and analysis, health and safety, and residual waste management. The DQOs for the treatability study shall be documented as well. The Treatability Study Work Plan shall also describe pilot plant installation and start-up, pilot plant operation and maintenance procedures, and operating conditions to be tested. If testing is to be performed off-Site, permitting requirements shall be addressed. A schedule for performing the treatability study shall be included with specific dates for the tasks, including, but not limited to, the procurement of contractors and the completion of sample collection, performance, sample analysis, and report preparation. The Work Plan shall describe in detail the treatment process and how the proposed vendor or technology will meet the Performance Standards for the Site. Review and approval by EPA shall mean only that EPA considers the proposed technology, vendor, and study approach appropriate for the remedy selected for the Site. The Treatability Study Work Plan shall also address how the Respondent proposes to meet all discharge requirements for any and all treated material, air, water and expected effluents. Additionally, the Work Plan shall also explain the proposed final treatment and disposal of all material generated by the proposed treatment system. Any and all permitting requirements shall also be addressed.

5. Treatability Study Sampling and Analysis Plan

If EPA determines that the Remedial Design SAP is not adequate for defining the activities to be performed during the Treatability Study, a separate Treatability Study SAP or an amendment to the RD SAP shall be prepared by the Respondent for EPA review and approval. It shall be designed to monitor pilot plant performance.

6. Treatability Study Health and Safety Plan

If EPA determines that the RD/RA Health and Safety Plan is not adequate for defining the activities to be performed during the Treatability Study, a separate Treatability Study Health and Safety Plan or an amendment to the RD/RA H&S Plan shall be developed by the Respondent. EPA will not

approve the Respondent's Health and Safety Plan, but rather EPA will review it to ensure that all necessary elements are included, and that the plan provides for the protection of human health and the environment.

B. Preliminary Design

Preliminary Design shall begin with initial design and shall end once the design bases have been developed, including the following items:

- draft decision rules for soil and groundwater remedies
- monitoring and permitting requirements
- results of initial investigative and SVE treatability testing

At this stage, the Respondent shall field verify, as necessary, the existing conditions of the Site. The technical requirements of the Remedial Action shall be addressed and outlined so that they may be reviewed to determine if the final design will provide an effective remedy. Supporting data and documentation shall be provided with the design documents defining the functional aspects of the project. EPA approval of the Preliminary Design is required before proceeding with further design work, unless specifically authorized by EPA. In accordance with the design management schedule established in the approved Remedial Design Work Plan, the Respondent shall submit to EPA the Preliminary Design submittal which shall consist of the following:

1. Results of Data Acquisition Activities

Data gathered during the project planning phase shall be compiled, summarized, and submitted along with an analysis of the impact of the results on design activities. In addition, surveys conducted to establish topography, rights-of-way, easements, and utility lines shall be documented. Utility requirements and acquisition of access, through purchases or easements, that are necessary to implement the RA shall also be discussed.

2. Design Criteria Report

The concepts supporting the technical aspects of the design shall be defined and presented in this report. Specifically, the Design Criteria Report shall include the preliminary design assumptions and parameters, including:

- a. Volume of each media requiring treatment
- b. Treatment schemes (including all media and by-products)
- c. Input/output rates
- d. Influent and effluent qualities
- e. Evaluations conducted to select the design approach
- f. Materials and equipment
- g. Performance Standards
- h. Decision rules for key performance measurements of both soils and groundwater remedies
- i. Long-term monitoring requirements
- j. Results of the SVE Treatability Tests

3. Preliminary Plans and Specifications

The Respondent shall submit an outline of the required drawings, including preliminary sketches and layouts, describing conceptual aspects of the design, unit processes, etc. In addition, an outline of the required specifications, including Performance Standards, shall be submitted. The outline submittal will discuss and reflect expected project delivery approach, i.e. performance specifications for design/builders versus detailed plans.

4. Plan for Satisfying Permitting Requirements

All activities must be performed in accordance with the requirements of all applicable federal and state laws and regulations. Any off-Site disposal shall be in compliance with the policies stated in the Procedure for Planning and Implementing Off-Site Response Actions (Federal Register, Volume 50, Number 214, November 1985, pages 45933 - 45937) and Federal Register, Volume 55, Number 46, March 8, 1990, page 8840, and the National Contingency Plan, Section 300.440. The plan shall identify the off-Site

disposal/discharge permits that are required, the time required to process the permit applications, and a schedule for submittal of the permit applications.

5. Draft Construction Schedule

The Respondent shall develop a Draft Construction Schedule for construction and implementation of the remedial action which identifies timing for initiation and completion of all critical path tasks. The Respondent shall specifically identify dates for completion of the project and major milestones.

C. Prefinal/Final Design

The Respondent shall submit the Prefinal Design when the design work is approximately 90 percent complete in accordance with the approved design management schedule. The Respondent shall address comments generated from review of the Preliminary Design Intermediate Design Review and clearly show any modification of the design as a result of incorporation of the comments. Essentially, the Prefinal Design shall function as the draft version of the Final Design. After EPA review and comment on the Prefinal Design, the Final Design shall be submitted along with a memorandum indicating how the Prefinal Design comments were incorporated into the Final Design. All Final Design documents shall be certified by a Professional Engineer registered in the State of Tennessee. EPA written approval of the Final Design is required before initiating the RA, unless specifically authorized by EPA. The following items shall be submitted with or as part of the Prefinal/Final Design:

1. Complete Design Analyses

The selected design shall be presented along with an analysis supporting the design approach. Design calculations shall be included.

2. Final Plans and Specifications

A complete set of detailed construction drawings and specifications, or performance specifications, as applicable, shall be submitted which describe the selected design.

3. Final Construction Schedules

The Respondent shall submit final construction schedules to EPA for approval.

4. Construction Cost Estimate

An estimate within +15 percent to -10 percent of actual construction costs shall be submitted.

The Performance Standard Verification Plan shall be due at the same time as the Prefinal/Final Design submittal, as specified in Task V.A.

TASK III - REMEDIAL ACTION

Remedial Action shall be performed by the Respondent to implement the response actions selected in the ROD.

A. Remedial Action Planning

Within seventy-five (75) days after approval of the Prefinal/Final Design, the Respondent shall submit a draft Remedial Action (RA) Work Plan, a Construction Management Plan, a Construction Quality Assurance Plan, a Construction Health and Safety Plan/Contingency Plan and an Operation and Maintenance Plan. The RA Work Plan, Construction Management Plan, and Construction Quality Assurance Plan must be reviewed and approved by EPA and the Construction Health and Safety Plan/Contingency Plan reviewed by EPA prior to the initiation of the Remedial Action. The Construction Quality Assurance Plan and Construction Health and Safety Plan are due only if EPA determines that the RD/RA QAPP and Health and Safety Plan are not adequate for defining the activities to be performed during construction.

Upon approval of the Final Design and the RA Work Plan, the Respondent shall implement the RA Work Plan in accordance with the construction management schedule. Significant field changes to the RA as set forth in the RA Work Plan and Final Design shall not be undertaken without the approval of EPA. The RA shall be documented in enough detail to produce as-built construction drawings after the RA is complete. Deliverables shall be submitted to EPA for review and approval in accordance with Section XIII of the UAO. Review and/or approval of submittals does not imply acceptance of later submittals that have not been reviewed, nor that the remedy, when constructed, will meet Performance Standards.

1. RA Work Plan

A Work Plan which provides a detailed plan of action for completing the RA activities shall be submitted to EPA for review and approval. The objective

of this Work Plan is to provide for the safe and efficient completion of the RA. The Work Plan shall be developed in conjunction with the Construction Management Plan, the Construction Quality Assurance Plan, and the RD/RA Health and Safety Plan/Contingency Plan, although each plan may be delivered under separate cover. The Work Plan shall include a comprehensive description of the work to be performed and the Final Construction schedule for completion of each major activity and submission of each deliverable.

Specifically, the Work Plan shall present the following:

- a. A detailed description of the tasks to be performed and a description of the work products to be submitted to EPA. This includes the deliverables set forth in the remainder of Task III.
- b. A schedule for completion of each required activity and submission of each deliverable required by this UAO, including those in this SOW.
- c. A project management plan, including provision for monthly reports to EPA and meetings and presentations to EPA at the conclusion of each major phase of the RA. EPA's Project Coordinator and the Respondent's Project Coordinator will meet, at a minimum, on a quarterly basis, unless EPA determines that such meeting is unnecessary. The management plan will address project delivery, including procurement and contracting strategy, project phasing, and "in-house" staffing level.
- d. A description of the community relations support activities to be conducted during the RA. At EPA's request, the Respondent shall assist EPA in preparing and disseminating information to the public regarding the RA work to be performed.

2. Construction Management Plan

A Construction Management Plan shall be developed to indicate how the construction activities are to be implemented and coordinated with EPA during RA. The Respondent shall designate a person to be a Remedial Action Coordinator and its representative on the Site during Remedial Action, and identify this person in the Plan. This Plan shall also identify other key project management personnel and lines of authority, and

provide descriptions of the duties of the key personnel along with an organizational chart. In addition, a plan for the administration of construction changes and EPA review and approval of those changes shall be included.

3. Construction Quality Assurance Plan

If EPA determines that the RD/RA QAPP is not adequate for defining the activities to be performed during construction, a separate Construction Quality Assurance Plan or an amendment to the RD/RA QAPP shall be developed by the Respondent. The Quality Assurance Plan must be reviewed and approved by EPA prior to initiation of the Remedial Action.

4. Construction Health and Safety Plan/Contingency Plan

If EPA determines that the RD/RA Health and Safety Plan is not adequate for defining the activities to be performed during construction, a separate Construction Health and Safety Plan/Contingency Plan or an amendment to the RD/RA H&S Plan shall be developed by the Respondent. EPA will not approve the Respondent's Health and Safety Plan, but rather EPA will review it to ensure that all necessary elements are included, and that the plan provides for the protection of human health and the environment.

B. Preconstruction Conference

A Preconstruction Conference shall be held after selection of the construction contractor but before initiation of construction. This conference shall include the Project Coordinators, Supervising Contractor, Construction Contractor, Natural Resource Trustees and other federal, state, and local agencies with a jurisdictional interest and shall:

1. Define the roles, relationships, and responsibilities of all parties;
2. Review methods for documenting and reporting inspection data;
3. Review methods for distributing and storing documents and reports;
4. Review work area security and safety protocols;
5. Review the Construction Schedule;

6. Verify that the design criteria and the plans specifications are understood and to review material and equipment storage locations.

The Preconstruction Conference must be documented, including names of people in attendance, issues discussed, clarifications made, special instructions issued, etc.

C. Prefinal Construction Inspection

Upon preliminary project completion the Respondent shall notify EPA for the purpose of conducting a Prefinal Construction Inspection. Participants should include the Project Coordinators, Supervising Contractor, Construction Contractor, Natural Resource Trustees and other federal, state, and local agencies with a jurisdictional interest. The Prefinal Inspection shall consist of a walk-through inspection of the entire project site. The objective of the inspection is to determine whether the construction is complete and consistent with the UAO. Any outstanding construction items discovered during the inspection shall be identified and noted on a punch list. Additionally, treatment equipment shall be operationally tested by the Respondent. The Respondent shall certify that the equipment has operated to effectively meet the purpose and intent of the specifications. Retesting shall be completed where deficiencies are revealed. A Prefinal Construction Inspection Report shall be submitted by the Respondent which outlines the outstanding construction items, actions required to resolve the items, completion date for the items, and an anticipated date for the Final Inspection.

D. Final Construction Inspection

Upon completion of all outstanding construction items, the Respondent shall notify EPA for the purpose of conducting a Final Construction Inspection. The Final Construction Inspection shall consist of a walk-through inspection of the entire project site. The Prefinal Construction Inspection Report shall be used as a check list with the Final Construction Inspection focusing on the outstanding construction items identified in the Prefinal Construction Inspection. All tests that were originally unsatisfactory shall be conducted again. Confirmation shall be made during the Final Construction Inspection that all outstanding items have been resolved. Any outstanding construction items discovered during the inspection still requiring correction shall be identified and noted on a punch list. If any items are still unresolved, the inspection shall be considered to be a Prefinal Construction Inspection requiring another Prefinal Construction Inspection Report and subsequent Final Construction Inspection.

E. Final Construction Report

Within ninety (90) days following the conclusion of the Final Construction Inspection, the Respondent shall submit a Final Construction Report. EPA will review the draft report and will provide comments to the Respondent. The Final Construction Report shall include the following:

1. Brief description of how outstanding items noted in the Prefinal Inspection were resolved;
2. Explanation of modifications made during the RA to the original RD and RA Work Plans and why these changes were made;
3. As-built drawings.
4. Synopsis of the construction work defined in the SOW and certification that the construction work has been completed.

F. Remedial Action Report

As provided in Section XXV of the UAO, within 90 days after the Respondent concludes that the Remedial Action has been fully performed and the Performance Standards have been attained, the Respondent shall so certify to the United States and shall schedule and conduct a pre-certification inspection to be attended by EPA and the Respondent. If after the pre-certification inspection the Respondent still believes that the Remedial Action has been fully performed and the Performance Standards have been attained, the Respondent shall submit a Remedial Action (RA) Report to EPA in accordance with Section XXV of the UAO. The RA Report shall include the following:

1. A copy of the Final Construction Report;
2. Synopsis of the work defined in this SOW and a demonstration in accordance with the Performance Standards Verification Plan that Performance Standards have been achieved;
3. Certification that the Remedial Action has been completed in full satisfaction of the requirements of the UAO, and;
4. A description of how the Respondent will Implement any remaining part of the EPA approved Operation and Maintenance Plan.

After EPA review, the Respondent shall address any comments and submit a revised report. As provided in Section XXV of the UAO, the Remedial Action shall not be considered complete until EPA approves the RA Report.

TASK IV - OPERATION AND MAINTENANCE

Operation and Maintenance (O&M) shall be performed in accordance with the approved Operation and Maintenance Plan.

A. Operation and Maintenance Plan

At the RA Work Plan stage, the Respondent shall submit an Operation and Maintenance Plan for review. The Operation and Maintenance Plan must be reviewed and approved by EPA prior to initiation of Operation and Maintenance activities. If necessary, the Operation and Maintenance Plan shall be modified to incorporate any design modifications implemented during the Remedial Action.

Upon approval of the Operation and Maintenance Plan, the Respondent shall implement the Operation and Maintenance Plan in accordance with the schedule contained therein. This plan shall describe start-up procedures, operation, troubleshooting, training, and evaluation activities that shall be carried out by the Respondent. The plan shall address the following elements:

1. Equipment start-up and operator training;
 - a. Technical specifications governing treatment systems;
 - b. Requirements for providing appropriate service visits by experienced personnel to supervise the installation, adjustment, start-up and operation of the systems; and,
 - c. Schedule for training personnel regarding appropriate operational procedures once start-up has been successfully completed.
2. Description of normal operation and maintenance;
 - a. Description of tasks required for system operation;
 - b. Description of tasks required for system maintenance;

- c. Description of prescribed treatment or operating conditions; and
 - d. Schedule showing the required frequency for each O&M task.
- 3. Description of potential operating problems;
 - a. Description and analysis of potential operating problems;
 - b. Sources of information regarding problems; and
 - c. Common remedies or anticipated corrective actions.
- 4. Description of routine monitoring and laboratory testing;
 - a. Description of monitoring tasks;
 - b. Description of required laboratory tests and their interpretation;
 - c. Required QA/QC; and
 - d. Schedule of monitoring frequency and date, if appropriate, when monitoring may cease.
- 5. Description of alternate O&M;
 - a. Should system fail, alternate procedures to prevent undue hazard; and
 - b. Analysis of vulnerability and additional resource requirements should a failure occur.
- 6. Safety Plan;
 - a. Description of precautions to be taken and required health and safety equipment, etc., for Site personnel protection, and
 - b. Safety tasks required in the event of systems failure.
- 7. Description of equipment;
 - a. Equipment identification;

- b. Installation of monitoring components;
 - c. Maintenance of Site equipment; and
 - d. Replacement schedule for equipment and installation components.
8. Records and reporting;
- a. Daily operating logs;
 - b. Laboratory records;
 - c. Records of operating cost;
 - d. Mechanism for reporting emergencies;
 - e. Personnel and Maintenance Records; and
 - f. Reports, the frequency to be determined by EPA, to State/Federal Agencies.
9. All necessary O&M information for the operating personnel.

TASK V - PERFORMANCE MONITORING

Performance monitoring shall be conducted to ensure that all Performance Standards are met.

A. Performance Standards Verification Plan

The purpose of the Performance Standards Verification Plan is to provide a mechanism to ensure that both short-term and long-term Performance Standards for the Remedial Action are met. Guidances used in developing the Sampling and Analysis Plan during the Remedial Design phase shall be used. The Respondent shall submit a Performance Standards Verification Plan with the Prefinal/Final Design. Once approved, the Respondent shall implement the Performance Standards Verification Plan on the approved schedule. The Performance Standards Verification Plan shall include:

- 1. The Performance Standards Verification Field Sampling and Analysis Plan, or an amendment of the RD SAP that provides guidance for all fieldwork by

defining in detail the sampling and data gathering methods to be used. The Performance Standards Verification Field Sampling and Analysis Plan shall be written so that a field sampling team unfamiliar with the Site would be able to gather the samples and field information required.

2. The Performance Standards Verification Quality Assurance/Quality Control Plan, or an amendment of the RD/RA QAPP, that describes the quality assurance and quality control protocols which will be followed in demonstrating compliance with Performance Standards.
3. Specification of those tasks to be performed by the Respondent to demonstrate compliance with the Performance Standards and a schedule for the performance of these tasks.

REFERENCES

The following list, although not comprehensive, comprises many of the regulations and guidance documents that apply to the RD/RA process. The Respondent shall review these guidances and shall use the information provided therein in performing the RD/RA and preparing all deliverables under this SOW.

1. "National Oil and Hazardous Substances Pollution Contingency Plan, Final Rule", Federal Register 40 CFR Part 300, March 8, 1990.
2. "Superfund Remedial Design and Remedial Action Guidance," U.S. EPA, Office of Emergency and Remedial Response, June 1986, OSWER Directive No. 9355.O-4A.
3. "Interim Final Guidance on Oversight of Remedial Designs and Remedial Actions Performed by Potentially Responsible Parties," U.S. EPA, Office of Emergency and Remedial Response, February 14, 1990, OSWER Directive No. 9355.5-01.
4. "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final," U.S. EPA, Office of Emergency and Remedial Response, October 1988, OSWER Directive No. 355.3-01.
5. "A Compendium of Superfund Field Operations Methods," Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, EPA/540/P-87/001a, August 1987, OSWER Directive No. 9355.0-14.
6. "EPA NEIC Policies and Procedures Manual," EPA-330/9-78-001-R, May 1978, revised November 1984.
7. "Data Quality Objectives for Remedial Response Activities," U.S. EPA, Office of Emergency and Remedial Response and Office of Waste Programs Enforcement, EPA/540/G-87/003, March 1987, OSWER Directive No. 9335.0-7B.
8. "Guidelines and Specifications for Preparing Quality Assurance Project Plans," U.S. EPA, Office of Research and Development, Cincinnati, OH, QAMS-004/80, December 29, 1980.
9. "Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans," U.S. EPA, Office of Emergency and Remedial Response, QAMS-005/80, December 1980.

10. "Users Guide to the EPA Contract Laboratory Program," U.S. EPA, Sample Management Office, August 1982.
11. "Environmental Compliance Branch Standard Operating Procedures and Quality Assurance Manual," U.S. EPA Region IV, Environmental Services Division, February 1, 1991, (revised periodically).
12. "USEPA Contract Laboratory Program Statement of Work for Organics Analysis," U.S. EPA, Office of Emergency and Remedial Response, February 1988.
13. "USEPA Contract Laboratory Program Statement of Work for Inorganics Analysis," U.S. EPA, Office of Emergency and Remedial Response, July 1988.
14. "Superfund Analytical Methods for Low Concentration Water for Organic Analysis," U.S. EPA, Office of Emergency and Remedial Response, June 1991.
15. "Quality in the Constructed Project: A Guideline for Owners, Designers, and Constructors, Volume 1, Preliminary Edition for Trial Use and Comment," American Society of Civil Engineers, May 1988.
16. "Interim Guidance on Compliance with Applicable or Relevant and Appropriate Requirements," U.S. EPA, Office of Emergency and Remedial Response, July 9, 1987, OSWER Directive No. 9234.0-05.
17. "CERCLA Compliance with Other Laws Manual," Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, August 1988 (Draft), OSWER Directive No. 9234.1-01 and -02.
18. "Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites," U.S. EPA, Office of Emergency and Remedial Response, (Draft), OSWER Directive No. 9283.1-2.
19. "Guide for Conducting Treatability Studies Under CERCLA," U.S. EPA, Office of Emergency and Remedial Response, Pre-publication Version.
20. "Health and Safety Requirements of Employees Employed in Field Activities," U.S. EPA, Office of Emergency and Remedial Response, July 12, 1981, EPA Order No. 1440.2.
21. "Standard Operating Safety Guides," U.S. EPA, Office of Emergency and Remedial

Response, November 1984.

22. "Standards for General Industry," 29 CFR Part 1910, Occupational Health and Safety Administration.
23. "Standards for the Construction Industry," 29 CFR 1926, Occupational Health and Safety Administration.
24. "NIOSH Manual of Analytical Methods," 2d edition. Volumes I - VII, or the 3rd edition, Volumes I and II, National Institute of Occupational Safety and Health.
25. "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities," National Institute of Occupational Safety and Health/Occupational Health and Safety Administration/United States Coast Guard/ Environmental Protection Agency, October 1985.
26. "TLVs - Threshold Limit Values and Biological Exposure Indices for 1987 - 88," American Conference of Governmental Industrial Hygienists.
27. "American National Standards Practices for Respiratory Protection," American National Standards Institute Z88.2-1980, March 11, 1981.
28. "Quality in the Constructed Project - Volume 1," American Society of Civil Engineers, 1990.

**SUMMARY OF THE MAJOR DELIVERABLES FOR THE
REMEDIAL DESIGN AND REMEDIAL ACTION AT
THE CARRIER AIR CONDITIONING SUPERFUND SITE**

DELIVERABLE

EPA RESPONSE

TASK I PROJECT PLANNING

No deliverables planned as part of Task I.

TASK II REMEDIAL DESIGN

RD Work Plan (10)	Review and Approve
Sampling and Analysis Plan (10)	Review and Approve
Health and Safety Plan (5)	Review and Comment
Treatability Study Work Plan (10)	Review and Approve
Treatability Study Sampling and Analysis Plan (10)	Review and Approve
Treatability Study Health and Safety Plan (5)	Review and Comment
Preliminary Design	
Results of Data Acquisition Activities (10)	Review and Approve
Design Criteria Report (10)	Review and Approve
Preliminary Plans and Specifications (10)	Review and Approve
Plan for Satisfying Permitting Requirements (10)	Review and Approve
Draft Construction Schedule (10)	Review and Comment

Prefinal/Final Design

Complete Design Analyses (10)	Review and Approve
Final Plans and Specifications (10)	Review and Approve
Final Construction Schedules (10)	Review and Approve
Construction Cost Estimate (10)	Review and Comment

TASK III REMEDIAL ACTION

RA Work Plan (10)	Review and Approve
Construction Management Plan (10)	Review and Approve
Construction Quality Assurance Plan (10)	Review and Approve
Construction Health and Safety Plan/Contingency Plan (5)	Review and Comment
Prefinal Construction Inspection Report (10)	Review and Approve
Final Construction Report (10)	Review and Approve
Remedial Action Reports (10)	Review and Approve

TASK IV OPERATION AND MAINTENANCE

Operation and Maintenance Plan (5)	Review and Approve
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TASK V Monitoring

Performance Standards Verification Plan (10)	Review and Approve
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* NOTE: The number in parenthesis indicates the number of copies to be submitted by the Respondent. One copy shall be unbound, the remainder shall be bound.